THE NEW YORK NEUROLOGICAL ASSOCIATION.

Stated Meeting held at the Academy of Medicine, Tuesday Evening, October 2, 1894.

Dr. EDWARD D. FISHER, President, in the chair.

Dr. C. L. DANA read a paper entitled

CORTICAL LOCALIZATION OF CUTANEOUS SENSATIONS.

Dr. DANA said that since his first article on this subject was written, a considerable amount of evidence has accumulated: the facts thus collected may be grouped in three classes: (1) the experimental; (2) the clinical and pathological; (3) the purely pathological.

DISCUSSION.

Dr. E. C. SEGUIN said the character of Dr. Dana's paper was such that it could hardly be discussed in an off-hand way. One point that occurred to him during the reading of the paper was that our methods of studying the sensibility of the skin and muscles in cases of cerebral paralysis are far from systematic or perfect. More particularly is this true with reference to the detection of slight alterations of the cutaneous tactile sense. We attach too much importance to the distance at which the patient can distinguish one point from another, and we are apt to neglect the more delicate contact tests for tactile sensations, which are so often impaired in cases of cerebral paralysis. The imperfections of our methods in this respect, Dr. Seguin said, would lead him to agree with the author of the paper that in many of the cerebral cases in which anæsthesia was reported absent, its presence was really overlooked.

Many observers confuse the various modes of tactile sensibility and the muscular sense, strictly speaking, and on this account some cases have been incorrectly observed, by inferring from certain tests which really apply to the tactile sensibility of the skin, that the consciousness of the muscular movements, their force and direction, was lost.

With reference to the theoretical part of the question brought up in the paper, Dr. Seguin said he felt very much disinclined to return to the old theory, ascribing a a sensory motor function to the motor cortex. There is no anatomical evidence that common sensory fibres proceeding from the periphery to the centres have their termination in any cells or groups of cells. The cells of the sensory apparatus are at the periphery, and as the fibres proceed centripetally, they subdivide into filaments of infinite smallness, which ramify and are lost between the cells, and may possibly have a connection with the unformed nervous substance. With such a conception of the structure of the central sensitive fibres, we need not be surprised if the function of common or tactile sensibility be found in ill-defined and extensive areas, most probably larger than the so-called motor zone. The "muscular sense" stands apart, and we have some reason to believe that we know its cortical "centre," but it is clearly outside the motor zone.

Dr. M. ALLEN STARR stated that a number of cases in addition to the two quoted by Dr. Dana had come under his observation, which have confirmed him in the theory that sensory disturbances are frequently met with in connection with lesions of the central convolutions. He is not, however, prepared to accept the view that the sensory and motor centres are coincident. The following case, showing that the muscular sense may be lost from a cortical lesion, without paralysis, recently came under his observation. The patient was a young man who entered the Presbyterian Hospital last February. Four years previously he had received a severe blow on the head, followed by very intense headache at the point where the blow was received. This was on the lest side of the head, about an inch and one-half from the median line, and two and one-half inches posterior to the fissure of Rolando. In addition to the headache he had been subject to attacks epileptic in character; it was not cortical epilepsy, the man having no convulsions, but psychical epilepsy. He had acute maniacal attacks, lasting about fifteen minutes; after such an attack he fell asleep, and on awakening he had no memory of what had occurred after the onset of the attack. These attacks became more frequent, incapacitating him for his work, and making his life a burden to himself and his friends. He had no paralysis; no anæsthesia of any kind, tactile, temperature, pain or muscular. It was decided to operate for this condition. An opening two inches in diameter was made in the skull by Dr. McCosh, one and one-half inches to the left of the median line and two and one-half inches posterior to the fissure of Rolando, and an angiomatous mass, consisting of a collection of veins, about three-quarters of an inch in diameter, was discovered. The larger vessels leading into this were tied off, and the mass removed. As soon as the patient came out from the æther, the house physician noticed a peculiar awkwardness of the fingers and hand on the right side. On examination it was found that as a result of the operation the patient had developed a most complete ataxia of the right hand, up as far as the elbow. He was unable to feed himself or carry a glass to his lips. The motions made with that hand were irregular and extremely ataxic. There was no disturbance of the tactile, pain or temperature senses. There was no disturbance of the power of movement, but when his eyes were blindfolded he was unable to reproduce with his right hand the position given to the left, and *vice versi.* This ataxic condition was much improved at the end of six weeks, and had entirely disappeared after three months. This case, Dr. Starr said, illustrated the localization of the muscular sense in the parietal lobe, and showed it to be entirely distinct from the tactile, temperature and pain senses, and from the motor power. He agreed with Dr. Seguin that we must remodel our ideas regarding the physiology of the sensory process. We must accept the idea that sensory impressions coming in from the skin pass upwards through the spinal cord, the medulla and the posterior part of the internal capsule, being distributed by means of collateral fibres to all the various parts of the gray matter, and that they probably have their terminal radiations in the posterior central convolution, not in cells, but in a fine terminal network. This in turn interlaces with the motorregion.

In conclusion, Dr. Starr said he was inclined to maintain the position that the posterior central convolution and the parts behind it are more concerned in sensation than the anterior parts, which are more concerned in motion. While there is no doubt a very close association between the two, yet the parts of the cortex must be considered separate.

Dr. LANDON CARTER GRAY said it seemed to him that we have thus far failed to discover the cortical centres of the tactile, muscular, painful and thermic sensations. As we all know, these senses may be absolutely lost in certain lesions of the cord, the medulla, and in the region of the basal ganglia. All the basalar portion of the brain is inaccessible to experimentation and observation, and in that region, perhaps, these centres may be located. In a few cases coming under his observation, in which the lesion was found in the motor area of the brain, he thought he was able to detect some impairment of the tactile sensibility (rendered somewhat dubious by the habits of the patient), and in one case, in which the lesion was in the vicinity of the ascending parietal convolution, there was marked impairment of the muscular sense. Dr. Gray said he was fully in accord with the statement made by one of the speakers that our present methods of detecting a loss of tactile or muscular sensibility are not sufficiently exact; the æsthesiometer certainly does not answer the purpose.

The PRESIDENT said he agreed with Dr. Seguin that the examination of patients with cerebral lesions is frequently too cursory, and that in many cases a careful examination would no doubt disclose some disturbance of muscular or tactile sensibility. The method of ascertaining the cutaneous sensibility by means of two pin points he has long ago abandoned, as it is very unreliable, and the results will differ even in a healthy person. It is certain, as Dr. Dana stated in his paper, that in some cases of cerebral lesions no disturbances of sensibility are present—at least to any marked degree. In a case recently under his observation, in which the lesion was essentially confined to the cortex, the patient had epileptic seizures limited to one side of the body, and there was at no time any tactile or muscular disturbance, nor was there any motor weakness.

Dr. DANA, in closing the discussion, said he did not agree with the statement made by Dr. Gray to the effect that thus far no progress has been made towards the localization of cutaneous sensations. Many cases are on record in which a certain portion of the cortex has been excised, and as a result there has been paralysis and anæsthesia in the region controlled by that cortical area. In his paper he only attempted to show that the cutaneous and muscular sensibilities have a representation of some kind in the areas of the brain that are known as motorial. Whether there is a definite special sensory centre in this region he does not pretend to say. We do know that all the clinical and pathological evidence at our command points to this part of the brain and nowhere else as the seat of these cutaneous disturbances.

Dr. STARR stated that an effort is being made in France to raise a fund for the erection of a statue to Charcot as a memorial to his scientific work. This movement has been taken up with interest by Charcot's pupils in Germany, Italy and other parts of the Continent, and committees have been appointed to solicit subscriptions and forward them to the treasurer of the fund in Paris. Dr. Starr said that, as there are probably many gentlemen in this country who are indebted to Prof. Charcot, and who are attached to his memory by their personal acquaintance with the man, it seemed to him appropriate that the New York Neurological Society should participate in this movement and appoint a committee to solicit contributions to this fund. He made a motion to this effect, which was carried.